**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**
**BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES**

**ATTY. DOCKET NO.: AUS920000652US1**

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| IN RE APPLICATION OF: | § | |
| | § | |
| **GABELE ET AL.** | § | EXAMINER: **DAVID SILVER** |
| | § | |
| SERIAL NO.: **09/997,460** | § | CONFIRMATION NO. : **6142** |
| | § | |
| FILED: **NOVEMBER 30, 2001** | § | ART UNIT: **2128** |
| | § | |
| FOR: **TRACKING CONVERGENCE RESULTS IN A BATCH SIMULATION FARM NETWORK** | § | |
| | § | |

## APPEAL BRIEF UNDER 37 C.F.R. 41.37

Mail Stop Appeal Briefs - Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

Sir:

This Appeal Brief is submitted in support of an Appeal of the final rejection of claims 1-15. A one-month extension of time is believed to be required in submitting this Appeal Brief. Please consider such extension requested and charge the one-month extension fee of $120.00 to Dillon & Yudell Deposit Account No. **50-3083**. Please charge IBM Corporation's Deposit Account No. **09-0447** in the amount of $500.00 for the submission of the present Brief. No additional fee or extension of time is believed to be required; however, in the event an additional fee is required, please charge that fee to IBM Corporation's Deposit Account No. **09-0447**.

## REAL PARTY IN INTEREST

The real party in interest in the present Application is International Business Machines Corporation, the Assignee of the present application as evidenced by the Assignment set forth at **reel 013105, frame 0051** et. seq. of the USPTO assignment records.

## RELATED APPEALS AND INTERFERENCES

There are no other appeals or interferences known to Appellants, the Appellants' legal representative, or assignee, which directly affect or would be directly affected by or have a bearing on the Board's decision in the pending appeal.

## STATUS OF CLAIMS

Claims 1-15 stand finally rejected by the Examiner, as noted in the final Office Action dated October 20, 2006. The rejection of claims 1-15 is appealed.

## STATUS OF AMENDMENTS

Appellants' Amendment A filed on September 11, 2006 was entered by the Examiner as indicated in the final Office Action. No amendment to the claims has been proposed or entered subsequent to Amendment A filed on September 11, 2006.

## SUMMARY OF THE CLAIMED SUBJECT MATTER

Appellants' invention is a method and system for tracking trends in count data for hardware description language (HDL) simulation models executed in a batch simulation farm environment (client/server architecture). The recited "count event data" are sequences of signal values that indicate the occurrence of simulation events tracked during simulation testing of HDL models. The claims expressly define the manner in which two different sets of count event data are processed including generating a first counter report from a first set of count event data and generating a second counter report from a second set of count event data in which each set of the respective sets of count event data is collected for a different simulation test (i.e. a first and second simulation tests) of the same HDL model. The claims furthermore expressly recite that the counter reports are compared using a normalization technique that uses the number of

simulator cycles specified in each of the reports to normalize the respective numbers of count event occurrences specified by the reports.

A key feature of the invention is that the instrumentation server generates "a counter difference report that specifies one or more count events for which the determined difference in the normalized numbers of occurrences of corresponding count events exceeds a pre-specified difference threshold." In this manner, the invention enables test and simulation personnel and devices to track abrupt changes in count event occurrences for a given HDL model in an environment in which the model may be simultaneously and/or sequentially tested on multiple simulation clients.

Appellant's **claim 1** recites "[i]n a hardware description language (HDL) batch simulation farm having multiple simulation clients coupled to an instrumentation server" (*see specification*, pg. 86, lines 1-23, describing with reference to **FIG. 16A** a simulation farm **1601** comprising farm nodes **1680a-d** (client nodes) coupled to an instrumentation server **1699**) "a method for providing centralized access to trends in count event data, wherein the count event data represents sequences of signal values that indicate the occurrence of events triggered during simulation testing of HDL models by the simulation clients" (**FIGS. 20A – 20I**; pg. 103, lines 3-25, describing a need for centralized access to count event data generated in HDL batch simulation farm environments; **FIGS. 21A – 21D**, pg. 116, line 26 through pg. 117, line 10, explaining need addressed by invention as providing means of determining trends in counter instrumentation data within a batch simulation farm; FIG. 21B, depicting count event data contained within counter output reports 2110 each comprising a row-wise record including one of count event totals, *count1-count6*, and further including the hierarchical specification of where the count event as having occurred in a design entity of an HDL model using the hierarchical HDL design and instrumentation entity naming convention (e.g. count1 is specified as occurring in ) including the following steps:

"utilizing said instrumentation server to:

receive a first set of count event data for a first simulation test of an HDL model" (**FIGS. 20A, 20B**, pg. 104, lines 6-24, describing aggregate count event packets **2010** received by instrumentation server **1699** and count data files **2001** that contain count data for a simulation test run);

"generate a first counter report from the first set of count event data, wherein the first counter report specifies a number of occurrences of one or more count events for the first simulation test and further specifies a number of simulation cycles over which the first simulation test was processed" (**FIGS. 20F**, **20G**; pg 109, lines 1-18, describing exemplary counter output report **2060** generated by instrumentation server **1699** from count data storage files **2001**; **FIGS. 21A**, **21B**, depicting counter reports **2060**, **2110a,b**; pg. 120, lines 8-15, describing counter reports as specifying number of occurrences in event count fields **2112a,b** of multiple count events <a>.<b>.<c>.<count1>, etc. over a specified number of simulation cycles specified in cycle count fields **2111a,b**);

"receive a second set of count event data for a second simulation test of the HDL model" (**FIGS. 20A, 20B**, pg. 104, lines 6-24, describing aggregate count event packets **2010** received by instrumentation server **1699** and count data files **2001** that contain count data for a simulation test run);

"generate a second counter report from the second set of count event data, wherein the second counter report specifies a number of occurrences of one or more count events for the second simulation test and further specifies a number of simulation cycles over which the second simulation test was processed" (**FIGS. 20F**, **20G**; pg 109, lines 1-18, describing exemplary counter output report **2060** generated by instrumentation server **1699** from count data storage files **2001**; **FIGS. 21A**, **21B**, depicting counter reports **2060**, **2110a,b**; pg. 120, lines 8-15, describing counter reports as specifying number of occurrences in event count fields **2112a,b** of multiple count events <a>.<b>.<c>.<count1>, etc. over a specified number of simulation cycles specified in cycle count fields **2111a,b**);

"compare said first counter report to said second counter report to detect variations in rates of occurrences of count events recorded in the first and second counter reports," (**FIG. 21B**, pg. 118, lines 10-25, count difference analyzer engine (CDAE) **2100** compares counter output report **2060b** with counter output report **2060a**; **FIG. 21C**, step **2120**, pg. 118, lines 21-27, describing CDAE **2100** comparing the counter output reports to produce a difference report)

"said comparing including:

utilizing the specified number of simulation cycles specified by said first counter report and the specified number of simulation cycles specified by the

second counter report to normalize the number of count event occurrences specified by said first counter report with respect to the number of count event occurrences specified by said second counter report" (**FIG. 21D**, step **2128**, pg. 120, lines 17-29, describing computation of normalization factor by computing ration between the cycle count fields **2111a** and **2111b**); and

"determining the difference in the normalized numbers of occurrences of corresponding count events specified by said first counter report and said second counter report" (**FIG. 21D**, steps **2130-2140**, pg. 121, lines 1-28, describing CDAE **2100** determining the difference between the normalization values including computing a percentage change between the normalized values in the counter reports **2110a,b**); and

"generate a counter difference report that specifies one or more count events for which the determined difference in the normalized numbers of occurrences of corresponding count events exceeds a pre-specified difference threshold" (**FIGS. 21B** and **21C**, pg. 120, line 4 – pg. 122, line 9, describing construction of counter difference report **2115** from counter output reports **2110a,b**; **FIG. 21C**, step **2122**, pg. 119, lines 6-8, generally describing generation of a counter difference report; **FIG. 21D**, pg. 119, line 29 – pg. 120, line 2, **FIG. 21D**, steps **2140** and **2142**, pg. 121, line 28 – pg. 122, line 3, describing recording that the difference threshold has been exceeded).

Appellant's **claim 6** recites "[i]n a hardware description language (HDL) batch simulation farm having multiple simulation clients coupled to an instrumentation server" (*see specification*, pg. 86, lines 1-23, describing with reference to **FIG. 16A** a simulation farm **1601** comprising farm nodes **1680a-d** (client nodes) coupled to an instrumentation server **1699**) "a system for providing centralized access to trends in count event data, wherein the count event data represents sequences of signal values that indicate the occurrence of events triggered during simulation testing of HDL models by the simulation clients" (**FIGS. 20A – 20I**; pg. 103, lines 3-25, describing a need for centralized access to count event data; **FIGS. 21A – 21D**, pg. 116, line 26 through pg. 117, line 10, explaining need addressed by invention as providing means of determining trends in counter instrumentation data within a batch simulation farm) including the following:

"means within said instrumentation server for:

receiving a first set of count event data for a first simulation test of an HDL model" (**FIGS. 20A, 20B**, pg. 104, lines 6-24, describing aggregate count event packets **2010** received by instrumentation server **1699** and count data files **2001** that contain count data for a simulation test run);

"generating a first counter report from the first set of count event data, wherein the first counter report specifies a number of occurrences of one or more count events for the first simulation test and further specifies a number of simulation cycles over which the first simulation test was processed" (**FIGS. 20F, 20G**; pg 109, lines 1-18, describing exemplary counter output report **2060** generated by instrumentation server **1699** from count data storage files **2001**; **FIGS. 21A, 21B**, depicting counter reports **2060, 2110a,b**; pg. 120, lines 8-15, describing counter reports as specifying number of occurrences in event count fields **2112a,b** of multiple count events <a>.<b>.<c>.<count1>, etc. over a specified number of simulation cycles specified in cycle count fields **2111a,b**);

"receiving a second set of count event data for a second simulation test of the HDL model" (**FIGS. 20A, 20B**, pg. 104, lines 6-24, describing aggregate count event packets **2010** received by instrumentation server **1699** and count data files **2001** that contain count data for a simulation test run);

"generating a second counter report from the second set of count event data, wherein the second counter report specifies a number of occurrences of one or more count events for the second simulation test and further specifies a number of simulation cycles over which the second simulation test was processed" (**FIGS. 20F, 20G**; pg 109, lines 1-18, describing exemplary counter output report **2060** generated by instrumentation server **1699** from count data storage files **2001**; **FIGS. 21A, 21B**, depicting counter reports **2060, 2110a,b**; pg. 120, lines 8-15, describing counter reports as specifying number of occurrences in event count fields **2112a,b** of multiple count events <a>.<b>.<c>.<count1>, etc. over a specified number of simulation cycles specified in cycle count fields **2111a,b**);

"comparing said first counter report to said second counter report to detect variations in rates of occurrences of count events recorded in the first and second counter reports," (**FIG. 21B**, pg. 118, lines 10-25, count difference analyzer engine (CDAE) **2100** compares counter output report **2060b** with counter output report **2060a**; **FIG. 21C**, step

**2120**, pg. 118, lines 21-27, describing CDAE **2100** comparing the counter output reports to produce a difference report)

"said comparing including:

utilizing the specified number of simulation cycles specified by said first counter report and the specified number of simulation cycles specified by the second counter report to normalize the number of count event occurrences specified by said first counter report with respect to the number of count event occurrences specified by said second counter report" (**FIG. 21D**, step **2128**, pg. 120, lines 17-29, describing computation of normalization factor by computing ration between the cycle count fields **2111a** and **2111b**); and

"determining the difference in the normalized numbers of occurrences of corresponding count events specified by said first counter report and said second counter report" (**FIG. 21D**, steps **2130-2140**, pg. 121, lines 1-28, describing CDAE **2100** determining the difference between the normalization values including computing a percentage change between the normalized values in the counter reports **2110a,b**); and

"generating a counter difference report that specifies one or more count events for which the determined difference in the normalized numbers of occurrences of corresponding count events exceeds a pre-specified difference threshold" (**FIGS. 21B** and **21C**, pg. 120, line 4 – pg. 122, line 9, describing construction of counter difference report **2115** from counter output reports **2110a,b**; **FIG. 21C**, step **2122**, pg. 119, lines 6-8, generally describing generation of a counter difference report; **FIG. 21D**, pg. 119, line 29 – pg. 120, line 2, **FIG. 21D**, steps **2140** and **2142**, pg. 121, line 28 – pg. 122, line 3, describing recording that the difference threshold has been exceeded).

Appellant's **claim 11** recites "[a] tangible computer-readable medium having encoded thereon in data storage media, computer-executable instructions" (see specification, pg. 142, lines 18-27, explaining the invention may be embodied as various computer data storage media storing instructions for performing the method) "for, within a hardware description language (HDL) batch simulation farm having multiple simulation clients coupled to an instrumentation server" (*see specification*, pg. 86, lines 1-23, describing with reference to **FIG. 16A** a simulation farm **1601** comprising farm nodes **1680a-d** (client nodes) coupled to an instrumentation server **1699**) "a system for providing centralized access to trends in count event data, wherein the count

event data represents sequences of signal values that indicate the occurrence of events triggered during simulation testing of HDL models by the simulation clients" (**FIGS. 20A – 20I**; pg. 103, lines 3-25, describing a need for centralized access to count event data; **FIGS. 21A – 21D**, pg. 116, line 26 through pg. 117, line 10, explaining need addressed by invention as providing means of determining trends in counter instrumentation data within a batch simulation farm), "said computer-executable instructions adapted for performing a method comprising:"

receiving a first set of count event data for a first simulation test of an HDL model" (**FIGS. 20A, 20B**, pg. 104, lines 6-24, describing aggregate count event packets **2010** received by instrumentation server **1699** and count data files **2001** that contain count data for a simulation test run);

"generating a first counter report from the first set of count event data, wherein the first counter report specifies a number of occurrences of one or more count events for the first simulation test and further specifies a number of simulation cycles over which the first simulation test was processed" (**FIGS. 20F**, **20G**; pg 109, lines 1-18, describing exemplary counter output report **2060** generated by instrumentation server **1699** from count data storage files **2001**; **FIGS. 21A**, **21B**, depicting counter reports **2060**, **2110a,b**; pg. 120, lines 8-15, describing counter reports as specifying number of occurrences in event count fields **2112a,b** of multiple count events <a>.<b>.<c>.<count1>, etc. over a specified number of simulation cycles specified in cycle count fields **2111a,b**);

"receiving a second set of count event data for a second simulation test of the HDL model" (**FIGS. 20A, 20B**, pg. 104, lines 6-24, describing aggregate count event packets **2010** received by instrumentation server **1699** and count data files **2001** that contain count data for a simulation test run);

"generating a second counter report from the second set of count event data, wherein the second counter report specifies a number of occurrences of one or more count events for the second simulation test and further specifies a number of simulation cycles over which the second simulation test was processed" (**FIGS. 20F**, **20G**; pg 109, lines 1-18, describing exemplary counter output report **2060** generated by instrumentation server **1699** from count data storage files **2001**; **FIGS. 21A**, **21B**, depicting counter reports **2060**, **2110a,b**; pg. 120, lines 8-15, describing counter reports as specifying number of occurrences in event count fields **2112a,b** of multiple count events <a>.<b>.<c>.<count1>, etc. over a specified number of simulation cycles specified in cycle count fields **2111a,b**);

"comparing said first counter report to said second counter report to detect variations in rates of occurrences of count events recorded in the first and second counter reports," (**FIG. 21B**, pg. 118, lines 10-25, count difference analyzer engine (CDAE) **2100** compares counter output report **2060b** with counter output report **2060a**; **FIG. 21C**, step **2120**, pg. 118, lines 21-27, describing CDAE **2100** comparing the counter output reports to produce a difference report)

"said comparing including:

utilizing the specified number of simulation cycles specified by said first counter report and the specified number of simulation cycles specified by the second counter report to normalize the number of count event occurrences specified by said first counter report with respect to the number of count event occurrences specified by said second counter report" (**FIG. 21D**, step **2128**, pg. 120, lines 17-29, describing computation of normalization factor by computing ration between the cycle count fields **2111a** and **2111b**); and

"determining the difference in the normalized numbers of occurrences of corresponding count events specified by said first counter report and said second counter report" (**FIG. 21D**, steps **2130-2140**, pg. 121, lines 1-28, describing CDAE **2100** determining the difference between the normalization values including computing a percentage change between the normalized values in the counter reports **2110a,b**); and

"generating a counter difference report that specifies one or more count events for which the determined difference in the normalized numbers of occurrences of corresponding count events exceeds a pre-specified difference threshold" (**FIGS. 21B** and **21C**, pg. 120, line 4 – pg. 122, line 9, describing construction of counter difference report **2115** from counter output reports **2110a,b**; **FIG. 21C**, step **2122**, pg. 119, lines 6-8, generally describing generation of a counter difference report; **FIG. 21D**, pg. 119, line 29 – pg. 120, line 2, **FIG. 21D**, steps **2140** and **2142**, pg. 121, line 28 – pg. 122, line 3, describing recording that the difference threshold has been exceeded).

## GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

A. The rejection of claims 1-5 and 11-15 under 35 U.S.C. §101 as being directed to non-statutory subject matter is to be reviewed on Appeal.

B. The rejection of claims 1-15 under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Appellants regard as the invention is to be reviewed on Appeal.

C. The rejection of claims 1-15 under 35 U.S.C. §103(a) as being unpatentable over U.S. Pat. No. 5,809,238, issued to Vaidyanathan et al. (hereinafter *Vaidyanathan*), in view of U.S. Pat. No. 5,604,895, issued to Raimi (hereinafter *Raimi*) is to be reviewed on Appeal.

## ARGUMENT

**A. The rejection of claims 1-5 and 11-15 under 35 U.S.C. §101 as being directed to non-statutory subject matter is not well founded and should be reversed.**

On page 2, reference item 9, the final Office Action asserts that claims 11-15 are directed to non-statutory subject matter because the limitation "generate/generating a counter difference report" is not output as a tangible result to, for example, a screen, tangible medium, printer, or the like. Appellants' specification, and particularly the portions of the detailed description for **FIGS. 1, 2, 20A, 21B**, and **21C** amply describe the tangible media and results on and for which the counter difference reports are generated. **FIG. 21B** depicts a counter difference report **2115** as a data structure including multiple fields **2113**, **2114**, and **2116** generated by a count difference analyzer engine (CDAE) **2100**. CDAE **2100** is depicted in **FIG. 21A** as a program physically loaded into a memory device **44**. Numerous figures including **FIGS. 1** and **2**, as well as the very well known state of computing arts renders practical application and result of a step of a memory loaded program processing specified inputs (i.e. counter output reports **2110a** and **2110b** in **FIG. 21B**) to generate an output report very clear. That is to say the claimed output counter difference report, consistent with counter difference report **2115** depicted in **FIG. 21B**, is a program generated data structure borne in any of a number of computer data storage media such as memory **44**, disk storage, etc. The question of which computer storage media the counter difference report is stored on is a question of claim breadth.

In reference item 9.2 on page 2, the final Office Action further asserts that the tangible medium is recited only in the preamble and is therefore not given patentable weight. Appellants

understand that an Examiner enjoys latitude during the course of prosecution to make such extra-legal distinctions between subject matter in the preamble that may or may not be limiting for the sake of clarity and process efficiency. Appellants contend, however, that the use of "tangible computer-readable medium," similar to how terms such as "method, "system," "device" are used in claims, is a fundamental characterization of what is being claimed and is therefore presumptively a substantive limitation for any good faith reading of the claim. However, Appellants are willing to defer to the aforementioned latitude given to an Examiner's judgment and have therefore attached proposed Amendment B as an addendum to this Appeal Brief. In this amendment, claims 11-15 are amended to place the words "tangible computer-readable medium after the "comprising:" in the preamble to remove any potential ambiguity. Appellants request that Amendment B be entered.

On page 3, reference item 11, the final Office Action asserts that claims 1-5 and 11-15 are directed to non-statutory subject matter because they include method steps that do not produce a useful, tangible, and concrete result. Appellants' specification, on page 116, line 26 through page 118 line 9 amply describe of Appellants' invention recited in independent claims 1 and 11. Regarding the tangible and concrete result, Appellants again contend that **FIGS. 1**, **2**, **20A**, **21B**, and **21C** amply describe the tangible media and results on and for which the counter difference reports are generated. These figures and corresponding description clearly convey that the algorithm underlying the method and article of manufacture are not abstractions but instead are computer-implemented processes and stored articles.

In ascertaining claimed subject matter, patent Examiners are expressly required by MPEP guidelines to review the complete specification, including the detailed description of the invention, any specific embodiments that have been disclosed, the claims and any specific, substantial, and credible utilities that have been asserted for the invention. Appellants understand that the present specification is extraordinarily long and have therefore made every effort in Amendment A filed on September 11, 2006 to assist in drawing the Examiner's attention to the figures and description most closely relating to and supporting the present claims. Furthermore, Appellants have expressly invited the Examiner to contact Appellants' representative to address any confusion or inefficiency that may arise as a result of the lengthy specification. Appellants note that to date the Examiner made no such attempt to work with Appellants who have indicated

a willingness to help find specification support relevant to the Examiner's questions and concerns.

**B. The rejection of claims 1-15 under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Appellants regard as the invention is not well founded and should be reversed.**

In reference item 12, on pages 3-4, the final Office Action asserts that it is unclear whether **claim 1** is reciting a method or an apparatus. It is manifestly clear from the preamble which expressly recites "a method for ....," followed by the claim body which recites procedural steps, that claim 1 is a method claim. The inclusion of the descriptive prepositional phrase "[i]n a hardware description language (HDL) batch simulation farm ..." provides significant contextual description that further characterizes the method. Nevertheless, claim 1 would have to be misread to omit the preposition "in" before "a batch simulation farm" to cause any confusion as to whether a method or the batch farm itself was being claimed.

In support of the foregoing rejection of claim 1, page 4 of the final Office Action asserts that if a method is being claimed, further steps are needed to establish a relationship between the preamble and the remainder of the claim. Appellants contend that the method steps which expressly refer to the "instrumentation server" which is recited and contextually described in the preamble are sufficient to render the claim sufficiently definite.

Regarding system claims 6-10, the final Office Action correctly notes that claim 6 improperly recites only a single means limitation which is indefinite *per se*. In the attached Amendment B, claim 6 has been amended to specify each individual limitation as a means for element. Appellants request entry of the amendment to claim 6.

The final Office Action does not specify the grounds for rejecting claims 11-15 under 35 U.S.C. §112, second paragraph, leaving Appellants unable to properly respond.

**C. The rejection of claims 1-15 under 35 U.S.C. §103(a) as being unpatentable over *Vaidyanathan* in view of *Raimi* is not well founded and should be reversed.**

**1. The combination of *Vaidyanathan* and *Raimi* does not disclose each claimed feature of claims 1, 6, and 11**

In Amendment A, filed on September 11, 2006, Appellants amended the claims to more concretely characterize and distinguish the proposed invention from the prior art. Claim 1, representative also of claims 6 and 11, was amended in Amendment A to recite a method for providing access to trends in count event data "wherein the count event data represents sequences of signal values that indicate the occurrence of events triggered during simulation testing of HDL models by the simulation clients." Since "count event data" is expressly recited in the claim body as well as the preamble, the foregoing preamble definition is a substantive limitation via antecedent basis as well as via the obvious contextual significance of the nature of the count event data as a feature of the claimed invention.

On page 6, the final Office Action asserts that the forgoing definition of "count event data" as "represent[ing] sequences of signal values that indicate the occurrence of events triggered during simulation testing of HDL models by the simulation clients" should not be given patenable weight. The final Office Action supports this assertion noting that the characterization of "count event data" occurs in the preamble and then concluding that the characterization does not breathe life into the claim. In the aforementioned noted portions of the specification as well as in the supporting remarks provided in Amendment A, Appellants have amply explained and supported the rationale for according patentable weight to the characterization of "count event data" as provided in the preamble of the independent claims. Moreover, in the supporting remarks on page 15 of Amendment A, Appellants expressly acknowledged that, "[c]laim 1 has been further amended to more specifically convey that the count event data 'represents sequences of signal values that indicate the occurrence of events triggered during simulation testing of HDL models by the simulation clients.' Since 'count event data' is utilized in the claim body, the foregoing definition forms a substantive claim limitation via antecedent basis in the amended claims" (emphasis added). The final Office Action's assertion otherwise is a mere unsupported conclusory statement that fails to respond to or acknowledge the foregoing well-founded contention by Appellants.

On page 6, the final Office Action asserts that *Raimi* discloses an analogous HDL simulation system having "the said distributed simulation features." Notably absent is any specific indication of whether or not the combination of *Raimi* and *Vaidyanathan* disclose count event data characterized as "represent[ing] sequences of signal values that indicate the occurrence of events triggered during simulation testing of HDL models by the simulation clients." Appellants agree that count event data characterized in this manner is certainly known in the art in various contexts, but contend that the failure of the combination of *Raimi* and *Vaidyanathan* to discuss such count event data in any manner whatsoever is strong evidence of the lack of merit in the present rejections.

The body of claim 1 recites steps describing the manner in which two different sets of such "count event data" are processed. The first four process steps describe generating a first counter report from a received first set of count event data and generating a second counter report from a received second set of count event data in which each set of the respective sets of count event data are collected for a different simulation test (i.e. a first and second simulation tests) of the same HDL model (see antecedent relation among the elements).

Nothing in *Raimi* and *Vaidyanathan*, either individually or in combination relates in any manner whatsoever to obtaining count event data over multiple simulation tests for a common simulation model and generating counter reports therefrom. *Vaidyanathan* generally discloses a method for performing register transfer level (RTL) HDL simulation in a manner that enables cycle-based simulation of systems in which simulation cycles may be problematic to define such as with asynchronous systems and systems using multi-phase clocking schemes (see col. 1, line 47 through col. 21, line 59).

Appellants disagree with the assertion on page 5 of the final Office Action which cites *Vaidyanathan* at col. 3, lines 44-52; col. 4, lines 4-7; col. 10, lines 21-23; col. 16, lines 28-31; FIG. 10 reference item 1012; and FIG. 11, emphasizing reference items 1150, 1155, 1157, 1160; col. 17, line 50 through col. 18, line 11, as disclosing the steps of "receiv[ing] a first set of count event data for a first simulation test of an HDL model" and "generat[ing] a first counter report from the first set of count event data, wherein the first counter report specifies a number of occurrences of one or more count events for the first simulation test and further specifies a number of simulation cycles over which the first simulation test was processed," and similarly for the receipt of the second set of count event data and generation of the second counter report.

As explained in the Abstract and elsewhere throughout the specification, *Vaidyanathan's* method fundamentally comprises: (1) identifying a set of "processes;" (2) identifying a set of triggered processes from the whole of the set of processes; (3) identifying a set of triggers for the set of triggered processes, wherein a first trigger in the set of triggers is for causing a state change in the simulation; (4) determining an evaluation order of the set of processes using the set of triggers; and (5) simulating the system using the evaluation order. As explained at col. 2, line 65 – col. 3, line 8, col. 3, lines 42-43; col. 3, lines 58-64, the processes, triggered processes and triggers are identified prior to or otherwise independently from actual simulation of the executable model. Therefore, the foregoing steps (1)-(3) are unrelated to the steps in Appellants' claim 1 of receiving a first/second set of count event data for a first/second simulation test of an HDL model, and generating a first/second counter report from the first/second set of count event data. At **FIGS. 10** and **11** and in the corresponding description, *Vaidyanathan* discloses cycle-based simulation testing of an HDL design in which the evaluation order of the set of processes may be determined by tracking activation of the identified triggers. In this manner, *Vaidyanathan* may inherently disclose a step analogous to receiving count event data. However, nothing in *Vaidyanathan*, individually or in combination with *Raimi* discloses generating a counter report from a set of count event data, in which the counter report specifies a number of occurrences of one or more count events for a simulation test and further specifies a number of simulation cycles over which the simulation test was processed.

Claim 1 further recites a comparison and normalization step which advantageously utilizes the specifically claimed features of the first and second counter reports. Namely, claim 1 recites that the instrumentation server is further utilized to "compare said first counter report to said second counter report to detect variations in rates of occurrences of count events recorded in the first and second counter reports," wherein said comparing includes "utilizing the specified number of simulation cycles specified by said first counter report and the specified number of simulation cycles specified by the second counter report to normalize the number of count event occurrences specified by said first counter report with respect to the number of count event occurrences specified by said second counter report."

Appellants disagree with the contention on page 5 of the final Office Action that *Vaidyanathan* discloses comparing first and second counter reports, each expressly characterized as specifying a number of count event occurrences for a respective simulation test and further

specifying a number of simulation cycles over which the simulation test was processed. In fact, col. 18, lines 1-11, cited by the final Office Action, describes a comparison of two categorically different types of counts – an iteration count and a trigger count. Neither the disclosed iteration count nor the trigger count are the same or equivalent to a counter report specifying a number of occurrences of one or more count events for a respective simulation test and further specifying a number of simulation cycles over which the simulation test was processed.

Claim 1 further characterizes the counter report comparing step, reciting, "utilizing the specified number of simulation cycles specified by said first counter report and the specified number of simulation cycles specified by the second counter report to normalize the number of count event occurrences specified by said first counter report with respect to the number of count event occurrences specified by said second counter report," and "determining the difference in the normalized numbers of occurrences of corresponding count events specified by said first counter report and said second counter report." Appellants disagree with the assertion on page 6, the final Office Action that these substeps are discloses by *Vaidyanathan* at col. 18, lines 1-11. As previously explained, col. 18, lines 1-11 describes a comparison of two categorically different types of counts – an iteration count and a trigger count – and fails to disclose or suggest any comparison between counter reports each specifying a number of count event occurrences during a simulation test as well as the number of simulation cycles the simulation test was processed over. Neither does this passage disclose such a comparison that is further characterized as including a cycle-based normalization substep and a normalized count differentiation substep. Presumably regarding the latter sub-step of determining the difference in the normalized numbers, the final Office Action at page 6 remarks that when the specified cycles are identical the "normalization" does not have an effect. This remark fails to address Appellants' express recitation of a normalization step in which "utilizing the specified simulation cycles specified by said first counter report and the specified number of simulation cycles specified by the second counter report to normalize the number of count event occurrences specified by said first counter report with respect to the number of count event occurrences specified by said second counter report."

Continuing with the grounds for rejecting claim 1, Appellants further contend that the combination of *Raimi* and *Vaidyanathan* fails to disclose or suggest a step of "generat[ing] a counter difference report that specifies one or more count events for which the determined

difference in the normalized numbers of occurrences of corresponding count events exceeds a pre-specified difference threshold." Page 6 of the final Office Action asserts that *Vaidyanathan* discloses the features of this element at col. 18, lines 12-18; col. 13, lines 43-57; FIG. 9 – emphasis on **950**, **295**, **290** and their descriptions; **FIG. 11** (emphasis on **1150**, **1155**, **1157**, and **1160**) and texts which further expand on its features. After careful review, Appellants contend that neither in these passages/figures, nor elsewhere does *Vaidyanathan* disclose or suggest generating a difference report that specifies the count event for which the determined difference (determined in the manner expressly recited by the preceding element) in the normalized count event occurrences exceeds a pre-specified threshold.

In sum, Appellants contend that the combination of *Raimi* and *Vaidyanathan* fail to disclose any method for tracking count event data across simulation tests of a simulation model including the foregoing discussed claim elements recited in the independent claims. Therefore, the rejections of claims 1, 6, and 11 under 35 U.S.C. §103(a) are not well founded and should be reversed.

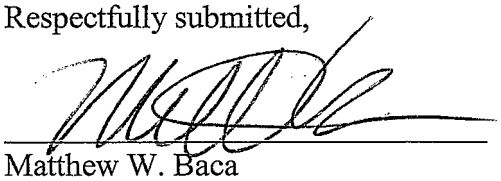
**2. Claims 2-5, 7-10, and 12-15**

Claims 2-5, 7-10, and 12-15 are directly or indirectly dependent on the independent claims 1, 6, and 11 which, as contended above by Appellants, have been incorrectly rejected under the reference. By extension, the rejections of claims 2-5, 7-10, and 12-15 are not well founded and should be reversed.

## CONCLUSION

Appellants have pointed out with specificity the manifest error in the grounds for rejecting the claims, and the claim language that renders the invention patentable over the combinations of references. Appellants therefore respectfully request that the claim rejections be reversed and this case be remanded.

Respectfully submitted,



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## CLAIMS APPENDIX

1. In a hardware description language (HDL) batch simulation farm having multiple simulation clients coupled to an instrumentation server, a method for providing centralized access to trends in count event data, wherein the count event data represents sequences of signal values that indicate the occurrence of events triggered during simulation testing of HDL models by the simulation clients, said method comprising:

utilizing said instrumentation server to:

receive a first set of count event data for a first simulation test of an HDL model;

generate a first counter report from the first set of count event data, wherein the first counter report specifies a number of occurrences of one or more count events for the first simulation test and further specifies a number of simulation cycles over which the first simulation test was processed;

receive a second set of count event data for a second simulation test of the HDL model;

generate a second counter report from the second set of count event data, wherein the second counter report specifies a number of occurrences of one or more count events for the second simulation test and further specifies a number of simulation cycles over which the second simulation test was processed;

compare said first counter report to said second counter report to detect variations in rates of occurrences of count events recorded in the first and second counter reports, said comparing including:

utilizing the specified number of simulation cycles specified by said first counter report and the specified number of simulation cycles specified by the second counter report to normalize the number of count event occurrences specified by said first counter report with respect to the number of count event occurrences specified by said second counter report; and

determining the difference in the normalized numbers of occurrences of corresponding count events specified by said first counter report and said second counter report; and

generate a counter difference report that specifies one or more count events for which the determined difference in the normalized numbers of occurrences of corresponding count events exceeds a pre-specified difference threshold.

2. The method of claim 1, further comprising:

executing a testcase using said HDL simulation model within said one or more simulation clients;

receiving an aggregate count event packet from said one or more simulation clients, wherein said aggregate count event packet includes count event data recorded during said testcase; and

within said instrumentation server, storing said count event data within count data storage files.

3. The method of claim 2, wherein said first and second counter reports are generated as output from count event queries processed with respect to said count data storage files.

4. The method of claim 2, wherein said first and second counter reports are generated directly from said counter data storage files.

5. The method of claim 1, wherein said first and second counter reports each include a simulator cycle count value that specifies the number of simulation cycles over which simulation testing was processed, said normalizing the number of count event occurrences specified by said first counter report with respect to the number of count event occurrences specified by said second counter report further comprising, computing a count normalization factor that is a ratio of the values of the simulator cycle count values contained in said first and second counter reports.

6. In a hardware description language (HDL) batch simulation farm having multiple simulation clients coupled to an instrumentation server, a system for providing centralized access to trends in count event data, wherein the count event data represents sequences of signal values that indicate the occurrence of events triggered during simulation testing of HDL models by the simulation clients, said system comprising:

means within said instrumentation server for:

receiving a first set of count event data for a first simulation test of an HDL model;

generating a first counter report from the first set of count event data, wherein the first counter report specifies a number of occurrences of one or more count events for the first simulation test and further specifies a number of simulation cycles over which the first simulation test was processed;

receiving a second set of count event data for a second simulation test of the HDL model;

generating a second counter report from the second set of count event data, wherein the second counter report specifies a number of occurrences of one or more count events for the second simulation test and further specifies a number of simulation cycles over which the second simulation test was processed;

comparing said first counter report to said second counter report to detect variations in rates of occurrences of count events recorded in the first and second counter reports, said comparing including:

utilizing the specified number of simulation cycles specified by said first counter report and the specified number of simulation cycles specified by the second counter report to normalize the number of count event occurrences specified by said first counter report with respect to the number of count event occurrences specified by said second counter report; and

determining the difference in the normalized numbers of occurrences of corresponding count events specified by said first counter report and said second counter report; and

generating a counter difference report that specifies one or more count events for which the determined difference in the normalized numbers of occurrences of corresponding count events exceeds a pre-specified difference threshold.

7. The system of claim 6, further comprising:

means for executing a testcase using said HDL simulation model within said one or more simulation clients;

means for receiving an aggregate count event packet from said one or more simulation clients, wherein said aggregate count event packet includes count event data recorded during said testcase; and

means within said instrumentation server for storing said count event data within count data storage files.

8. The system of claim 7, wherein said first and second counter reports are generated as output from count event queries processed with respect to said count data storage files.

9. The system of claim 7, wherein said first and second counter reports are generated directly from said counter data storage files.

10. The system of claim 6, wherein said first and second counter reports each include a simulator cycle count value that specifies the number of simulation cycles over which simulation testing was processed, said means for normalizing the number of count event occurrences specified by said first counter report with respect to the number of count event occurrences specified by said second counter report further comprising means for computing a count normalization factor that is a ratio of the values of the simulator cycle count values contained in said first and second counter reports.

11. A tangible computer-readable medium having encoded thereon in data storage media, computer-executable instructions for, within a hardware description language (HDL) batch simulation farm having multiple simulation clients coupled to an instrumentation server, providing centralized access to trends in count event data, wherein the count event data represents sequences of signal values that indicate the occurrence of events triggered during simulation testing of HDL models by the simulation clients, said computer-executable instructions adapted for performing a method comprising:

receiving count event data for a first simulation test of an HDL model;

generating a first counter report from the first set of count event data, wherein the first counter report specifies a number of occurrences of one or more count events for the first simulation test and further specifies a number of simulation cycles over which the first simulation test was processed;

receiving a second set of count event data for a second simulation test of the HDL model;

generating a second counter report from the second set of count event data, wherein the second counter report specifies a number of occurrences of one or more count events for the second simulation test and further specifies a number of simulation cycles over which the second simulation test was processed;

comparing said first counter report to said second counter report to detect variations in rates of occurrences of count events recorded in the first and second counter reports, said comparing including:

utilizing the specified number of simulation cycles specified by said first counter report and the specified number of simulation cycles specified by the second counter report to normalize the number of count event occurrences specified by said first counter report with respect to the number of count event occurrences specified by said second counter report; and

determining the difference in the normalized numbers of occurrences of corresponding count events specified by said first counter report and said second counter report; and

generating a counter difference report that specifies one or more count events for which the determined difference in the normalized numbers of occurrences of corresponding count events exceeds a pre-specified difference threshold.

12. The computer-readable medium of claim 11, said method further comprising:

executing a testcase using said HDL simulation model within said one or more simulation clients;

receiving an aggregate count event packet from said one or more simulation clients, wherein said aggregate count event packet includes count event data recorded during said testcase; and

within said instrumentation server, storing said count event data within count data storage files.

13. The computer-readable medium of claim 12, wherein said first and second counter reports are generated as output from count event queries processed with respect to said count data storage files.

14. The computer-readable medium of claim 12, wherein said first and second counter reports are generated directly from said counter data storage files.

15. The computer-readable medium of claim 11, wherein said first and second counter reports each include a simulator cycle count value that specifies the number of simulation cycles over which simulation testing was processed, said normalizing the number of count event occurrences specified by said first counter report with respect to the number of count event occurrences specified by said second counter report further comprising, computing a count normalization factor that is a ration of the values of the simulator cycle count field values contained in said first and second counter reports.

## EVIDENCE APPENDIX

Other than the Office Action(s) and reply(ies) already of record, no additional evidence has been entered by Appellants or the Examiner in the above-identified application which is relevant to this appeal.

## RELATED PROCEEDINGS APPENDIX

There are no related proceedings as described by 37 C.F.R. §41.37(c)(1)(x) known to Appellants, Appellants' legal representative, or assignee.